U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

Green IT 2012: Sustainable Electronics

2012 DOE Information Management Conference

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WORKSHOP STRUCTURE

- Electronics Life Cycle Stage Management Strategies: Drivers, Goals, Best Practices
  - Procurement
  - Operations and Management (O&M)
  - Disposition
- Reporting
- Environmental Benefits of Best Practices
- Next Steps

Procurement: EPEAT

- EPEAT (Electronic Product Environmental Assessment Tool) is the global registry for greener electronics, certifying environmentally preferable electronics like computers and monitors.
- EPEAT registration reflects categories of required and optional environmental /energy attributes:

- Energy Star/Energy Conservation
- Packaging and material selection
- Design for end of life
- Product longevity
- End-of-life management
- Corporate performance
- Reduction/elimination of
- environmentally sensitive materials

Procurement: EPEAT

- Thousands of electronics products are registered with EPEAT from more than fifty manufacturers.

United States	epeat BRONZE	epeat SILVER	epeat GOLD	Total
Desktops	1	73	125	199
Displays	0	350	374	724
Integrated Desktop Computers	1	50	58	109
Notebooks	34	562	1288	1884
Tablet Notebooks	0	0	0	0
Thin Clients	0	17	9	26
Workstation Desktops	0	0	20	20
Workstation Notebooks	0	1	4	5
Totals	36	1053	1878	2967

Procurement: Meeting Overlapping Goals

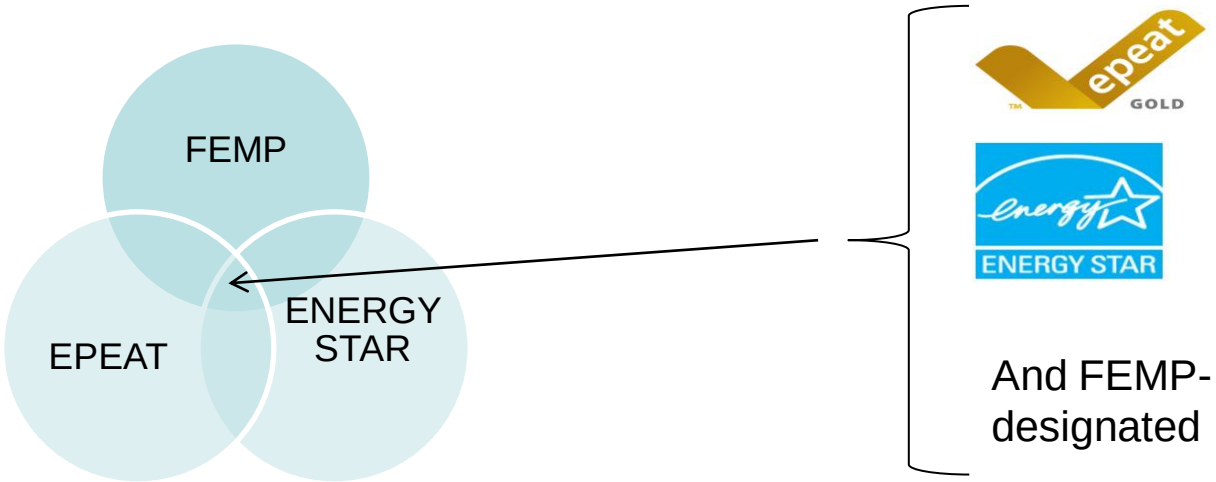
EPEAT: More than 95% desktop computers, laptops, thin clients, and monitors must be EPEAT certified.

Energy Star: All computing and electronics products must be Energy Star qualified.

FEMP Designation: Products must meet energy efficiency and low stand-by power consumption requirements.

Procurement Solutions

- Procurement efforts should specify computers and displays in the “sweet spot” that are Energy Star/ EPEAT-registered and that meet FEMP requirements
- Vendors can be required to help with tracking
- Sites can verify with checks (see resources appended)



Procurement: EPEAT Goals

- More than 95% of the desktop computers, laptops, thin clients, and monitors purchased by federal agencies must be EPEAT certified, required by the Federal Acquisition Regulation (FAR) and other drivers.
- EPEAT standards are dynamically linked to Energy Star standards. Periodically all EPEAT-certified products are updated to new Energy Star standards.
- EPEAT will launch new standards for imaging equipment like printers, copiers, and multifunction devices and wide screens and televisions in 2012. Agencies will be required to buy these EPEAT-certified products as well.

Energy Star and Federal Energy Management Program (FEMP) Goals

- All computing and electronics products must be Energy Star qualified.
  - EPEAT products must meet Energy Star standards but some Energy Star-qualified electronics products are not EPEAT.
- 95% of office equipment with a FEMP designation and low standby power section must be FEMP qualified:

  http://www1.eere.energy.gov/femp/technologies/eep_purchasingspecs.html
  - FEMP designation includes energy efficiency regulations and requirements for low standby power consumption. 80% of EPEAT registered monitors meet FEMP requirements.
  - EPEAT desktop/laptops meet FEMP energy efficiency requirements but may not meet low standby power consumption requirements

Operations and Maintenance (O&M) Goals

1. **Power management on 100% of computers, desktops, and displays:**
   - Exempt equipment: special mission critical applications such as security monitoring, science experiments, etc.
2. **Implement print management strategies to reduce costs and cut paper usage. Energy-efficient strategies include:**
   - Default “duplexing” or two sided printing on printers/copiers;
   - “Draft” quality printing for non-essential materials;
   - Toner efficient fonts;
   - Transition from personal to networked printers which are power managed.
3. **Establish 4 year equipment refresh cycle in contracts**
   - Replace computer and imaging inventory with environmentally preferable (EPEAT, FEMP, Energy Star, etc) equipment.

Operations and Maintenance Best Practices

1. Establish power management and print management programs.
2. Conduct a robust equipment census that includes eligible units, exempt units, and equipment under power and print management.
3. Utilize power management software for comprehensive solutions.
4. Require suppliers to enable power management settings upon purchase.
5. Review power management settings to ensure they have not been modified or tampered.

A New Disposition Driver from General Services Administration (GSA)

- GSA issued Bulletin FMR B-34 “Disposal of Federal Electronic Assets” on February 29, 2012, defining federal assets as:
  - Copiers,
  - Telephones, fax machines, and communication equipment,
  - Electrical and electronic measuring and testing Instruments,
  - Digital cameras,
  - Desktop and laptop/portable computers, computer monitors, displays, printers, peripherals, and electronic components; and,
  - Televisions and other displays.

New GSA Disposition Guidance

1. Prohibits disposal of electronic waste in landfills or by incineration.
2. Encourages maximum re-use of electronics within the Federal government and state/local donation customers to minimize the waste stream.
3. Limits agencies to sell only functional assets to the public. Prohibits sales of non-functional electronic assets. They must be disposed through certified recyclers and other agencies.
4. Requires advising and educating down-stream recipients to dispose of end of life electronics to certified recyclers.

GSA Disposition Guidance

GSA Authorized recyclers include:

- About 150 private sector recyclers currently certified under the Responsible Recycler (R2) Standards: http://www.r2solutions.org/
- About 53 private sector recyclers certified under E-Stewards Standards http://e-stewards.org/
- UNICOR (certified under R 2 Standards) http://www.unicor.gov/recycling/
- Donations to GSA Computers for Learning http://computersforlearning.gov/

Disposition Best Practices

- Sell only functional assets to the public. Non-functional assets go to certified recyclers; auctions of non-functional equipment are banned. Do not send electronics for incineration or landfill disposal under any circumstance.
- Provide recycling information to non-profits, schools with donations of end of life electronics.
- Track items offered for sale and for recycling internally or via vendor contract,
- Periodically audit recyclers or review third party audits. Ensure specific recycler locations are certified.

Reporting Requirements

The DOE Sustainability Performance Office reports annual agency electronics stewardship performance to Office of Management and Budget and the White House Council on Environmental Quality.

The Office of the Chief Information Officer harvests the data with the assistance of the Office of Sustainability Support (HS-21). The data covers DOE life cycle management of its electronics assets:

- Procurement
- Operations and Management (O&M)
- Disposition

DOE 2012 Procurement Reporting

- Report purchases of EPEAT-certified and non-EPEAT purchases of desktops, notebooks and displays.
- Report purchases of printers, multifunction devices, TVs, servers, cellular/mobile telephones. (EPEAT will cover these in near future.)
- Confirm whether the facility Environmental Management System (EMS) addresses electronics stewardship.
    - Note that DOE reporting mirrors Federal Electronic Challenge reporting: http://www.federalelectronicschallenge.net/

DOE 2012 O&M Reporting

- Conduct a census of the total number of computers and displays in use.
- Review the number and function of computers and displays exempt from power management because of mission-critical exemptions.
- Count the non-exempt computers and displays under power management
- Evaluate the average lifespan of computers.
- Calculate the percentage of eligible printing equipment placed under print management.

DOE 2012 Disposition Reporting

- Count and report numbers of computers, displays, printers, TVs, servers, cell phones, and mixed electronic products [MEPs] sent off-site at end of life:
  - Reused
  - Sent to recycling
  - Unknown disposition (including sales)
  - Sent to landfill/incinerator

- For mixed electronics products not individually counted, report the weight of products disposed of by the categories above.

DOE FY 2012 Disposition Reporting

Identify your equipment recycler:

- R2 or e-Stewards Certified Recycler
- UNICOR
- Manufacturer Take-Back Program for EPEAT products
- Manufacturer Take-Back Program for Non-EPEAT registered products*
- Other such as a local non-certified recycler*

Report due diligence activities for recyclers noted with "*" above, such as on-site review, third party verifiers, or other activities.

2012 OMB Scorecard Electronics Stewardship

OMB ranks federal agencies on electronic stewardship practices twice a year on a Sustainability Scorecard. Agencies score "red", "yellow", or "green" based upon five criteria:

1. Purchasing EPEAT Products.
   - Has the agency purchased 95% EPEAT-certified products?
   - Do IT contracts include EPEAT clauses?
   - Report number of EPEAT and non-EPEAT monitors, PCs, and laptops purchased.
2. Purchasing Energy Star- and FEMP-designated products.
   - Number of contracts that require Energy Star and/or FEMP designated products and total number of contracts reviewed.

2012 OMB Scorecard
Electronics Stewardship (Continued)

3. Meeting OMB expectations for enabled power management (PM) in 100% computers and displays.
   - Number of enabled and exempt computers and monitors.
   - Total number of computers and monitors in agency-wide census.
   - 100% power management for eligible computers and monitors.
4. Reporting environmentally preferable features
   - Percentage of duplexing (two sided printing) printers.
   - Number of applicable contracts that include clauses addressing duplexing.
5. Documenting environmentally sound disposition
   - Report Agency use of GSA Xcess, CFL, Unicor, R2 and/or e-Steward recyclers or private recyclers.
   - Percentage of end of life electronics reused and recycled.

Calculating Environmental Benefits of Green IT

Tools to assist in calculating the environmental benefits of best electronic stewardship practices:

- Environmental benefits of all life cycle best practices: http://www.federalelectronicschallenge.net/resources/bencalc.htm
- Monitor energy savings: www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_monitorsBulk.xls
- Desktop CPU energy savings: www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_Computer_product.xls

FY11 Environmental Benefits of DOE EPEAT Purchasing and Green O&M

Energy Savings:

50,000,000 Kilowatt Hours

Green House Gas Emissions Savings:

9,610,000 Kg of CO_2 Equivalent

Projected Dollar Savings:

$4,810,000

Calculation estimates made from FY11 DOE procurement and O&M data, using EPA FEC Electronics Environmental Benefits Calculator.

FY11 Environmental Benefits of DOE Recycling and Reuse

Energy Savings:

120,000,000 Kilowatt Hours

Green House Gas Emissions Savings:

15,600,000 Kg of CO2 Equivalent

Projected Dollar Savings:

$ 11,210,000

Calculation estimates made from DOE FY11 disposition data using EPA Electronics Environmental Benefits Calculator.

Next Steps: EPEAT and Energy Star

- Two new EPEAT standards are expected in 2012 from Institute of Electrical and Electronics Engineers (IEEE) :
  - IEEE 1680.2 Standard for Imaging Equipment
  - IEEE 1680.3 Standard for Televisions and Wide Screens.
- EPEAT Computer Standard IEEE1680.1 will be updated.
- Energy Star Version 6 is under development; may include slate computers like iPads.
- New 2012 Energy Star standards will include Uninterrupted Power Sources, Data Storage, Imaging, TVs, Computers, Displays, Battery Chargers.

Next Steps (continued)

- New federal print management requirements will promote default duplexing and the transition from personal printers to networked, duplex-capable printers.
- Support for increased procurement of thin clients (vs. computers) and slates (vs. laptops) to reduce energy usage.
- GSA interagency efforts for federal sustainable procurement requirements will recognize more product standards and eco-labels.

Next Steps (continued)

- Previously optional reporting categories are expected become required reporting; for example, tracking disposition of all electronics assets (Slide 16).
- FEMP updates scheduled for 2013 will reflect changes in DOE standards, ENERGY STAR specifications, and the marketplace.
  - Short term**:** Linking standby power requirements with Federal Supply Source databases like GSA Advantage.
  - Mid term**:** Working to integrate standby power attributes for computers and laptops into Energy Star and EPEAT
- Guidance principles in GSA Bulletin FMR B-34 “Disposal of Federal Assets” will be converted into regulations within the next 18-24 months or sooner.

Summary

- Electronic stewardship involves a full life-cycle approach: procurement, operations and maintenance, and disposition.
- Green IT best practices involve active collaboration among procurement, IT, property, and environmental and safety staffs.
- Electronic stewardship practices have major benefits: cost and energy savings, reduced GHGs and other environmental benefits, and “Green” agency scorecard rankings by OMB.

Summary (Cont.)

SUMMARY ITEM	FY 12 GOALS
Procure Energy Star	100%
Procure EPEAT	95%
Procure FEMP	95%
Power Management	100%
Duplex Printing	100%
Sound Disposition Practices	100%

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